

Bulletin, Southern California Academy of Sciences

VOLUME 44

PART 1, 1945

FOSSIL ARTHROPODS OF CALIFORNIA

W. DWIGHT PIERCE

5a. A CRYSTALLIZED MILLIPEDE FROM VOLCANIC
ROCK IN A WELL (Cont.)

(PLATE 1)

Continuing the article in vol. 43, part 1, p. 18, it was decided to publish Mr. Peter Marry's excellent photograph of the crystallized millipede found at the depth of 900 ft. in a well at Oxnard, California and to dedicate it to its finder, General Carl F. A. Last. It will therefore bear the name *Parajulus lasti* n. sp., and is recorded in the Los Angeles Museum under Accession No. A 3104, and in the Paleontology collection as S 9002.

Although critical characters are not visible this species differs as follows from other American species in its size and segmentation.

Species of <i>Parajulus</i>	Distribution	Number of Segments	Length	Width
<i>lasti</i> n. sp.	Fossil in Calif.	65 or 66	38	2.0
<i>ectenes</i> Bollman	North Carolina	67	46 - 54	1.6-1.8
<i>pennsylvanicus</i> (Brandt)	Eastern U.S.A.	55 - 65	20 - 38	1.5-2.
<i>canadensis</i> (Newport)	Canada, N.E.U.S.	56 - 57	18 - 25	1.3-1.5
<i>rugosus</i> Bollman	Pennsylvania	51 - 54	35 - 40	2.2-3.0
<i>obtectus</i> Bollman	Indiana, Florida	50 - 55	18 - 30	1.8-2.2
<i>varius</i> Bollman	California	50 - 55	18 - 24	1.5-1.8
<i>impressus</i> Say	Eastern U.S.A.	45 - 55	18 - 32	1.8-2.0
<i>zonatus</i> Bollman	Washington	52 - 53	25 - 40	2.0-2.5
<i>diversifrons</i> Wood	Minnesota	42 - 51	23	2.0
<i>ellipticus</i> Bollman	Minnesota	47	28 - 30	2.3-2.5

By the above measurements *lasti* is closest to the present day eastern *Parajulus pennsylvanicus*, but is given a name because of its locality and age.



PLATE 1

Parajulus lasti Pierce, crystallized millipede from depth of 900 ft. in well at Oxnard, Cal., in basaltic lava, with crystallized quartz.

6. TWO NEW FOSSILS FROM THE UPPER MIOCENE OF THE PUENTE HILLS

The two new specimens were found by Dr. Lore Rose David in Upper Puente shale of the Mohnian Horizon, Upper Miocene, at depth of 2105-2127 ft. in the Puente Hills, southeast of Puente, Los Angeles Co., California. They were given by her to Miss Jane Everest, who presented them to the Los Angeles County Museum of History, Science and Art.

Specifically, the location is 2649° N.- 2' E. from the S. W. corner of Section 21 - 2 S -10 W, La Habra quadrangle, elevation 620, in Axis Co. well Rowland No. 1.

This is a light gray shale, and the first specimen is beautifully etched in white lines, while the second specimen is such a faint impression that it is quite marvellous that it should have been detected.

The first wing is of the mayfly type, but more primitive than the modern mayflies, because of the complete absence of cross veins. It shows relationship to the Megasecoptera, but to keep the record clear a new ordinal name is proposed.

Order APHELOPHLEBIA, *new order*

An order of fossil insects in which there are no cross veins in the wings. The radius extends the entire length of the wing and has three apparent branches; medius has two long stems and a short intermediate branch; cubitus is entire; paracubitus is apparently branched.

Family APHELOPHLEBODIDAE, *new family*

With the characters of the order.

Genus APHELOPHLEBODES, *new genus*

Name based on ἀφελῶς, simply, and φλεβῶδης, veined. The costal-subcostal region is not visible. Radius is slightly concave in the supposed subcostal region, thence almost straight to its apex in the wing margin. Near its apical fourth a short vein, interpreted as Radius 2 + 3 branches off and reaches the margin at the apex of the wing. At about the middle of Radius a longer vein, interpreted as Radius 4 branches off, and reaches the margin of the wing. Below this and just before its apical fourth a short little vein, interpreted as Radius 5 branches off and reaches margin of wing. The next vein is longer and looks as if it were also a branch of Radius from its basal fourth, but is interpreted as Medius 1. The next long vein arises at the base of the wing

and is interpreted as *Medius* 3 + 4. Apically between these two is a fainter vein reaching the wing margin, and interpreted as *Medius* 2. *Cubitus* arises at base and extends to wing margin, parallel to *Medius* 3 + 4. *Paracubitus* is basally strong, but about midway to the wing margin seems to be branched, perhaps into a long branch and two shorter branches, which are indicated by typical whitening of the other veins.

APHELOPHLEBODES STOCKI, new species. (Plate 2)

Type of the genus; named in honor of Dr. Chester Stock, Professor of Paleontology of California Institute of Technology, Senior Curator of Earth Sciences at the Los Angeles County Museum of History, Science and Art, and a Director of the Southern California Academy of Sciences. Type in Los Angeles Museum, under Accession No. A4709, Paleontology specimen S 9006.



PLATE 2

Aphelophlebodes stocki Pierce; impression of wing of fossil mayfly from oil well core, near Puente, Cal., at depth of 2105-2127 ft., in Upper Puente shale, Mohnian Horizon, Upper Miocene.

Length of impression 7 mm., greatest width 2.6 mm. The fossil consists of impressions of the veins, which are milky white, smooth texture, on a small square piece of shale.

The species description is that of the genus. The excellent photograph is by Mr. Peter Marry, Photographer of the Museum.

Order LEPIDOPTERA LINNAEUS

Family HEPIALIDAE Stephens

Genus PROTOHEPIALUS, new genus

This genus is typically hepialid, because of the three basal cells formed by Radial Sector, Medius 2, Medius 3, and Cubitus 2 with the R-M, M-M, and M-Cu crossveins. These crossveins are very indistinctly shown by the photograph by Mr. Marry, but can be seen by other lighting. The genus differs from other Hepialidae by having Radius 1 and Subcosta united at base; by the faintness of Medius 1; the presence of an indication of Medius 4; the division of Cubitus 1 into two or possibly three veins.

PROTOHEPIALUS COMSTOCKI, new species. (Plates 3, 4)

Type of genus; named in honor of Dr. John Adams Comstock, Head Curator of Science of the Los Angeles Museum of History, Science and Art, and Secretary-Treasurer, Editor of the Southern California Academy of Sciences. The holotype is a faint impression of a portion of a wing of a primitive hepialid moth, occupying a space about 5x5 mm. The sketch (Plate 4) interpreting the photograph gives the Author's ideas of the venation, which is typically hepialid.

Briefly the elements of venation discernible are: Subcosta and Radius united for some distance; Radial sector divided beyond the cross veins into Radius 2 and 3; Radius 4 and 5 branching from the first cell; Medius 1 indistinct between Radius 5 and Medius 2; Medius 2 and 3 almost parallel, forming with M-M cross vein the second cell; Medius 4 faint; Cubitus 1 divided into two, possibly three branches; Cubitus 2 forming with the M-Cu cross vein and Medius 3, the third cell.



PLATE 3

Protohepialus comstocki Pierce; impression of wing of moth from oil well core, near Puente, Calif., at depth of 2105-2127 ft., Upper Puente shale, Mohnian Upper Miocene

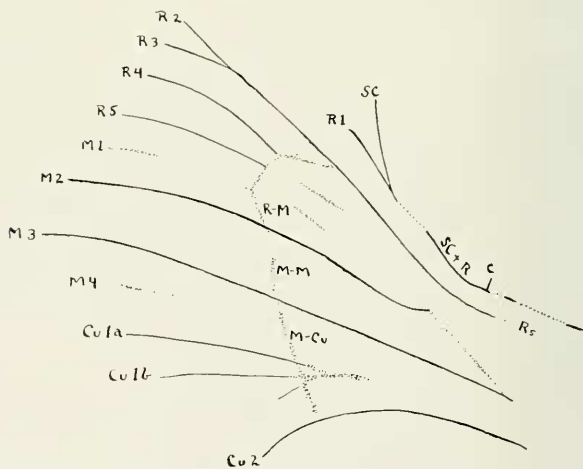


PLATE 4

An interpretation of the venation of *Protohepialus comstocki* Pierce

7. A FOSSIL WHIPTAIL SCORPION FROM CABRILLO BEACH

In November, 1944, Mr. E. E. Hadley found a piece of shale lying on the Cabrillo Beach shore at San Pedro, California, which contained the crushed remains of a whiptail scorpion. The writer has seen only one other fossil in this group, from Mexican onyx, and knows of no fossil species having been described. The specimen is too badly crushed to give any adequate description of the appendages, but deserves to be placed on record.

Order PEDIPALPI Latreille

Family THELIPHONIDAE Lucas

Genus THELYPHONUS Latreille, sens. lat.

THELYPHONUS HADLEYI, new species. (Plate 5).

This species is dedicated to its finder, Mr. E. E. Hadley, a member of the Southern California Academy of Sciences and a

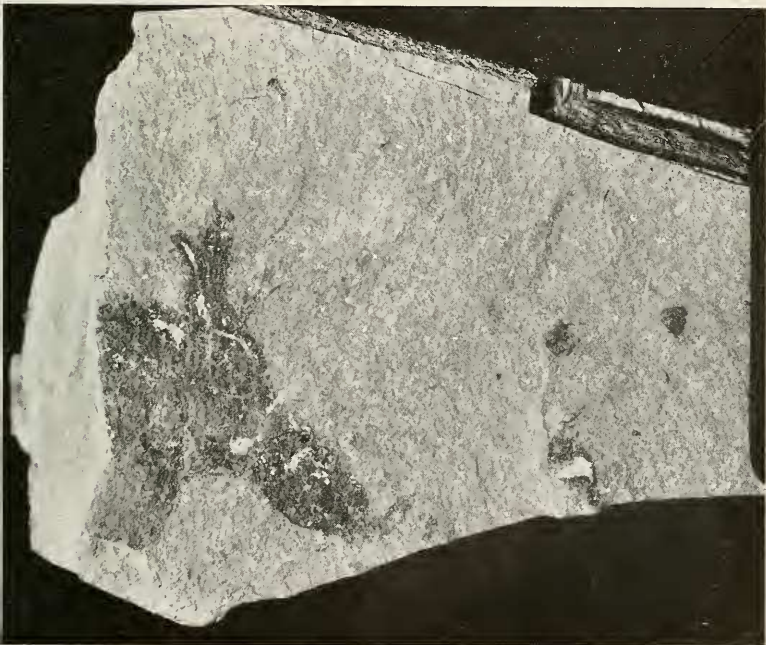


PLATE 5

Thelyphonus hadleyi Pierce; fossil whiptail scorpion from Middle Miocene Monterey shale found on shore at San Pedro, Calif.

collaborator of the Los Angeles County Museum, working in Invertebrate Paleontology. It is recorded under Accession Number A6, and in Paleontology records as S 9008.

The shale is probably of local origin, for a bank of diatomaceous shale above where it was found contains many rocks of this type imbedded at various levels. It is Middle Miocene, Monterey shale.

Total length 22 mm., cephalothorax 7x3 mm., abdomen 9x4 mm. Only a part of the tail is present, and the heavy chelicerae are so crushed that their character is indeterminate. The photograph by Mr. Marry gives better detail than a description can.

8. A CASE OF PLEISTOCENE MYIASIS FROM THE LA BREA PITS (Plate 6)

In examining bone fragments of the giant fossil bird, *Terrornis merriami*, found in the La Brea Pits, Hancock Park, Los Angeles, Dr. Hildegard Howard found a piece of the proximal end of a humerus which contained 8 puparia of a blow fly. The exact site of this find was pit 3, at depth of 21½ feet. The period of the material in these pits is Pleistocene.

A reconstruction of the story is probably thus: One of these giant birds alighted on an animal caught in the tar, and began to feed upon it. In the process, it also became caught in the tar and fell prey to a predatory animal, such as the sabretooth tiger. This animal crushed the bones, exposing them to the blowing by flies. Undoubtedly the tiger was caught also. Blowfly attack occurs within the first two or three days after death, and one can assume about 15 days for the fly larvae to develop, pupate and mature. Some of them had matured, others were caught when the bone finally became submerged in the tar. This constitutes the first dipterous evidence from the tar pits.

Order DIPTERA Linnaeus

Family METOPIIDAE Curran

Genus PROTOCHRYSOMYIA, new genus

PROTOCHRYSOMYIA HOWARDAE, *new species*

Named in honor of Dr. Hildegard Howard, Curator of Avian Paleontology of the Los Angeles County Museum and a member of the Southern California Academy of Sciences. Recorded by the Museum as S 9009 in bone fragment B2309.

Fly puparia, reddish brown in color, 8x3 mm., convex

throughout except that there is a slight flattening at the cephalic end, and a distinct depression of the spiracular area. The spiracles are of the same type as those of the Calliphorinae, *Phormia regina*, and *Cochliomyia macellaria* but more widely separated, placing the species in that group. Entire surface transversely pitted. The anterior end shows four slight tubercles, but is otherwise not distinctive. The emergence opening is by a longitudinal slit, and a transverse slit to form a T with the other. The anal tubercular area is definitely depressed with a deep transverse depression below the spiracles; the area is surrounded by a rounded rim on which are 6 dorsal, 2 lateral and 4 ventral little tubercles. Within this are the two spiracular plates with three straight slits each, directed at a point beyond the line between the ventral edges of the plates; without buttons, the lower margin open. These plates are separated by a distance of 12 as compared with a width of 15 for the plates. There are two strong anal tubercles, bluntly pointed and directed slightly outward.

In our modern flies the sarcophagine flies are separated from the calliphorine flies by having the spiracles in a pit, but with the slits directed outward instead of inward as occurs in this species. So little good work has been done in describing the puparia of modern flies that the writer feels justified in recording this species with a new name.



PLATE 6

Puparia of *Protochrysomya howardae* Pierce in a bone fragment of the giant bird, *Teratornis merriami*, from La Brea Pits, Los Angeles, Pleistocene tar deposit